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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,479	09/26/2003	Douglas M. Smith	50001-00025	8244

7590 08/31/2004

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EXAMINER
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SPITZER, ROBERT H

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 08/31/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/672,479

Applicant(s)

SMITH ET AL.

Examiner

Robert H. Spitzer

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33-49 is/are allowed.
- 6) ☒ Claim(s) 1-32 and 50-62 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/22/2004.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Claims 33-49 are allowed.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1,3-5,8,9,11-23,26,27,29-32,50,51,54,55 and 57-62 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the sorber structure of Garrett et al. (5,268,022), particularly at col. 5, line 51 through col. 6, line 58.
4. Claim 2 is again rejected under 35 U.S.C. 103(a) as being unpatentable over Garrett et al. (5,268,022) in view of Biskis (3,734,293). The claim differs from the structure of Garrett et al. ('022) in there being more than one flow channel. Biskis ('293) shows that a plurality of flow channels 12 can be used for an adsorption device (col. 2, lines 3-19). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to structure the filter device of Garrett et al. ('022) to have a plurality of flow channels, in view of the showing of Biskis ('293), so that the device can adsorb more water vapor and so that the device can be made smaller.
5. Claims 6,7,24,25,52 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garrett et al. (5,268,022) in view of Smith et al. (6,559,096). The claims differ from the structure of Garrett et al. ('022) in the desiccant being a metal salt coated onto a porous support. Smith et al. ('096), at col. 36, lines 6-62, show a desiccant material which is a metal salt coated onto a porous support. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to utilize a desiccant which is a metal salt supported (coated) on a porous support as the

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desiccant in the device of Garrett et al. ('022), in place of the alumina gel or the zeolite, in view of the showing of Smith et al. ('096), as any desiccant material known to the art would be expected to be interchangeable and usable in place of each other.

6. Claims 10,28 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garrett et al. (5,268,022) in view of Colvin et al. (6,298,907). The claims differ from the disclosure of Garrett et al. (022) in the composition of the phase change material being a paraffinic material. Colvin et al. ('907), at col. 1, line 66 through col. 2, line 9, and col. 3, line 56 through col. 4, line 40, show that a phase change material can be either water or a "paraffinic hydrocarbon". It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to utilize a paraffinic hydrocarbon in place of the water in the device of Garrett et al. ('022) as the phase change material, in view of such alternative showing by Colvin et al. ('907).

7. Applicant's arguments filed July 28, 2004 have been fully considered but they are not persuasive. With respect to the reference to Garrett et al. ('022), applicants state that it "does not disclose or suggest a phase change material in thermal communication with a desiccant". The examiner does not agree for the following reasons. The "phase change material" in Garrett et al. ('022) is the water within cavity 48 of heat conductive member 42 and such member 42 is in thermal communication with adsorbent bed 34, which bed 34 can be a zeolite molecular sieve. That zeolite molecular sieve is also a "desiccant" material in addition to its role as an adsorbent for other components of the feed gas stream. Note, that applicants' claims 5,23 and 51 specifically recite that the desiccant material includes "zeolites". Also, "water" is indeed a "phase change material",

as it changes from a liquid to either a solid or a gas, depending upon its temperature. Thus, the reference to Garrett et al. ('022) does indeed disclose "a phase change material" which is "water" and such "water" is "in thermal communication with a desiccant", which is the zeolite molecular sieve. As to the Colvin et al. ('907) reference, its sole purpose is to show that "water" and "paraffinic hydrocarbons" can be used in an alternative manner as phase change materials. Thus, the skilled artisan, having both the references to Garrett et al. ('022) and Colvin et al. ('907) before him, would have found it obvious to use either material as the "phase change material" within the adsorber bed of the Garrett et al. (022) device. It is noted that applicants have not specifically argued the use of the references to Biskis (3,734,293) and Smith et al. (6,438,992), and thus no further comments to those references by the examiner are necessary. Any other remarks made by applicants and not specifically commented upon by the examiner, have been considered.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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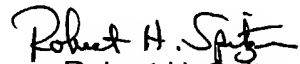
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert H. Spitzer whose telephone number is (571) 272-1167. The examiner can normally be reached on Monday-Thursday from (5:30AM-4:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

August 30, 2004

  
Robert H. Spitzer  
Primary Examiner  
Art Unit 1724  
August 30, 2004